honor of meeting the inventor of a lot of the technology and the machines here. A couple of things struck me. One, solar technology is commercial and—particularly because they've figured out ways to make long rolls of this photovoltaic technology. That's important to help us achieve a major goal, which is to become less dependent on foreign sources of oil.

I spent the day earlier in Wisconsin, where I was able to see some amazing technologies that will help us change the way we drive our automobiles. This technology right here is going to help us change the way we live in our homes. The ultimate goal is to have solar technology on your home, and that home will become a little power-generating unit unto itself, and that if you have extra electricity, that you could put it back in your grid, so you become a power producer, but you're using renewable sources of energy to power your homes and to fire up your refrigerators. And this is real. I really am thankful that the folks of this company gave me a chance to come and visit about it.

The role of the Government at this point is to continue to spend research dollars to help push technologies forward, is to get these technologies to be even more competitive in the marketplace. And I'm calling on Congress to join us on this most important energy initiative. As most folks know, there's a lot of needless politics in Washington, DC. There's a lot of finger pointing and a lot of zero-sum attitude amongst the people up there. And of all the issues, becoming less dependent on foreign sources of energy is an issue that we ought to be able to unite and show the American people we can work together to help advance the technologies that will change the world in which we live.

I am very excited about what I've seen here. I'm excited about the future, because we've got great inventors and great entrepreneurs here in our own country, preparing for ways to enable the American people to get rid of our addition to oil. And that will not only enhance our economic security but enhance our national security as well.

Thank you very much.

NOTE: The President spoke at 4:18 p.m. In his remarks, he referred to Subhendu Guha, president and chief operating officer, United Solar Ovonic.

## Remarks in a Discussion on Energy Conservation and Efficiency in Golden, Colorado

*February 21, 2006*

***The President.*** Thank you all. Please be seated. Thanks for having me. I am honored to be at the National Renewable Energy Lab, which will be henceforth called NREL. [*Laughter*] I have come today to discuss unbelievable opportunities for our country to achieve a great national goal, and that is to end our addiction on oil.

I know it sounds odd for a Texan to say that. [*Laughter*] But I have spent a lot of time worrying about the national security implications of being addicted to oil, particularly from parts of the world where people may not agree with our policy or our way of life, and the economic security implications of being hooked on oil, particularly since the demand for oil is rising faster than the supply of oil. And any time that happens, it creates the conditions for what could be—price disruption and price spikes at home are like hidden taxes on the working people of our country.

And so we're here to discuss ways to achieve this really important national goal. And there's no better place to come than NREL, and I want to thank you all for hosting me. I appreciate—I really appreciate the scientists and dreamers and, more importantly, doers who work here to help achieve this important goal.

I recognize that there has been some interesting—let me say—mixed signals when it comes to funding. The issue, of course, is whether or not good intentions are met with actual dollars spent. Part of the issue we face, unfortunately, is that there are sometimes decisions made, but as a result of the appropriations process, the money may not end up where it was supposed to have gone. I was talking to Dan about our mutual desire to clear up any discrepancies in funding, and I think we've cleaned up those discrepancies. My message to those who work here is: We want you to know how important your work

is; we appreciate what you're doing; and we expect you to keep doing it; and we want to help you keep doing it.

I want to thank Dan. He's going to be saying some stuff here in a minute, so we're not going to—I'm just going to thank him. I want to thank your staff for hosting us. It's a pain to host the President. [*Laughter*] But anyway, you've done a fine job. And I want to thank the Governor of the State of Colorado, Bill Owens, for joining us. The United States Senator Ken Salazar—thanks for coming, Ken. I appreciate it. The Congressman from this district, Bob Beauprez—I appreciate you being here. The Congressman from the adjoining district, Mark Udall—Mark, there you go. Thanks for coming.

We got all kinds of people—we got the mayor—appreciate you coming, Mayor Baroch. Thanks for coming, Mayor. Just fill the potholes. [*Laughter*] You got a great city—thanks for having us. I appreciate the statehouse folks, Senator Andy McElhany and Joe Stengel, from this district. I think that's right. Appreciate you coming. Thank you, Andy. Good to see you. I want to thank the directors—thank everybody. [*Laughter*]

So the challenge is, what do we do to achieve objectives? In other words, we set goals—so what do we need to do? What do we need to do as a nation to meet the goal? How can we fulfill our responsibilities that really say we understand the problems we face? So here's what we need to do.

First, we need to make sure we're the leader of technology in the world. I don't mean just relative to previous times in American history. I think this country needs to lead the world and continue to lead the world. And so, how do you do that? First, there's a Federal commitment to spending research dollars. In my State of the Union, I called on Congress to double the research in basic sciences at the Federal level. This will help places like NREL. It will continue this grand tradition of the Federal Government working with the private sector to spend valuable research money in order to make sure we develop technologies that keep us as the leader.

In order for us to achieve this national goal of becoming less dependent on foreign sources of oil, we've got to spend money. And the best place to do that is through research labs such as NREL. Now, we also got to recognize that two-thirds of the money spent on research in the United States comes from the private sector. See? So it's one thing for the Federal Government to make a commitment of doubling the funding over a 10-year period, but we've got to recognize that most of the money is done through corporate America, through the private sector.

And one thing that seems like a smart thing to do, for me, is to make the tax rules clear. The research and development tax credit expires on an annual basis. It doesn't make any sense to say to corporate America or the private sector, "Plan for the long run, but we're not going to tell you whether or not the Tax Code is going to be the same from year to year." And so, in order to encourage that two-thirds of the investment in the private sector—necessary to help us achieve national goals and objectives, one of which is to stay on the leading edge of innovation—is to have the research and development tax credit a permanent part of our Tax Code.

Now, in order to get us less addicted to oil, we got to figure out where we use oil, and that's pretty easy, when you think about it. We use a lot of oil for our transportation needs. And so if we can change the way we drive our cars and our trucks, we can change our addiction to oil. And laboratories such as this are doing unbelievably interesting work on helping us change the way we drive our automobiles. And you're going to hear some interesting discussion with people who are on the frontlines of these technological changes.

Just—I want to tell the American people three ways that we can change the way we drive our automobiles. One is through the use of hybrid vehicles. And Congress wisely increased the tax credit available to those who purchase hybrid vehicles. In other words, we're trying to increase demand for hybrid vehicles. You can get up to a $3,400 tax credit now if you buy a hybrid vehicle. Hybrid vehicles are vehicles that use a gasoline engine to help charge a battery, and when the battery is charged, the battery kicks in, and if the battery gets low, the gasoline engine kicks back in to charge the battery.

It's a hybrid—in other words, two sources of power for the engine.

The new technological breakthrough, however, is going to be when we develop batteries that are able to enable an automobile to drive, say, the first 40 miles on electricity alone. Those are what we call plug-in hybrid vehicles. And yesterday I was at Johnson Controls, which is one of the private-sector companies that are developing the new technologies to enable cars to be able to not need the gasoline engine to charge the battery. Now, that saves a lot of—you can begin to think about how this new technology is going to enable us to save on gasoline use, which makes us less dependent on crude oil, since crude oil is the feedstock for gasoline.

The idea is to have an automobile, say, that can drive 40 miles on the battery, as I mentioned. But if you're living in a big city, that's probably all you're going to need for that day's driving. And then you can get home and plug your car right into the outlet in your house. This is coming. I mean, we're close to this. It's going to require more research dollars. The budget I submitted to the Congress does have money in it for this type of research for new types of batteries. But I want the people to know we're close. The hybrid vehicles you're buying today are an important part of making sure you save money when it comes to driving. But they're going to change with the right research and development. Technology will make it so that the hybrid vehicles are even better in getting us less addicted on oil and making it good for the consumer's pocketbook.

Secondly, there is a fantastic technology brewing—I say brewing; it's kind of a catch on words here—[*laughter*]—called ethanol. I mean, it's—there's a lot of folks in the Midwest driving—using what's called E–85 gasoline. It means 85 percent of the fuel they're putting in their car is derived from corn. This is exciting news for those of us worried about addiction to oil. I mean, you grow a lot of corn; you're less dependent on foreign sources of energy. Using corn for fuel helps our farmers and helps our foreign policy at the same time. It's a good deal.

The problem is, we need more sources of ethanol. We need more—need to use different products than just corn. Got to save some corn to eat, of course. [*Laughter*] Corn flakes without corn is kind of—[*laughter*]. And so one of the interesting things happening in this laboratory and around the country is what's called the development of cellulostic ethanol. That's a fancy word for using switch grass, corn—or wood products, stuff that you generally allow to decompose, to become a source of energy.

And as our fellow citizens begin to think to whether or not it makes sense to spend research, imagine—dollars on this technology, imagine people in the desert being able to grow switch grasses that they can then convert into energy for ethanol for the cars that they're driving there in Arizona. I mean, all of a sudden, the whole equation about energy production begins to shift dramatically. And we're going to hear a lot about cellulostic ethanol.

Finally, hydrogen fuel cells. It's not a short-term solution or an intermediate-term solution, but it's definitely a long-term solution. It will help us achieve grand objectives, less dependence on oil, and the production of automobiles that have zero emissions that could harm our air. And we'll talk a lot about hydrogen fuel cells.

Finally, I do want to talk about technologies that will enable us to change the way we power our homes and businesses, which is the second part of the strategy, the Advanced Energy Initiative strategy.

First of all, there's huge pressure on natural gas—people in Colorado know what I'm talking about. We've been using a lot of natural gas for the generation of electricity. And we got to change that. Natural gas is important for manufacturing. It's important for fertilizers. But to use it for electricity is causing enormous pressure, because we're not getting enough natural gas produced.

One way to alleve [alleviate] * the pressure on price is to expand the use of liquefied natural gas through new terminals. And I want to thank the Congress for passing new siting rights in the energy bill that will enable us to have more terminals for us to be able to receive liquefied natural gas from parts of the world that can produce it cheaply—

* White House correction.

liquefy it, and then ship it to the United States.

But the other way to take the price off of gas is to better use coal, nuclear power, solar, and wind energy. Now, when you hear people say coal, it causes people to shudder, because coal—it's hard to burn it. But we have got—we're spending about $2 billion over a 10-year period to develop clean coal technologies. If technology can help the way we live, technology can certainly help change the way we utilize coal. And it's important that we spend money on new technologies so we can burn coal cleanly, because we got 250 years worth of coal reserves.

One way to take the pressure off natural gas is to use coal more efficiently. We believe by 2015, we'll have developed the first zero-emission coal-fire electricity plant. We're making progress. We're spending money; research is good. The American taxpayers have got to know that by spending money on this vital research, that we're going to be able to use our abundant sources of coal in an environmentally friendly way and help with your electricity bills.

Secondly, we've got to use nuclear power more effectively and more efficiently. We haven't built a plant since the 1970s. You're seeing now, France has built a lot of plants since the 1970s. They get about 85 percent of their electricity from nuclear power. And technology has changed dramatically, and I believe we can build plants in a safe way and, at the same time, generate cost-effective electricity that does not—that the process of which won't pollute.

And so we've begun to, in the energy bill, begun to provide incentives for the nuclear power industry to start siting plants. It just doesn't make any sense to me that we don't use this technology if we're interested in becoming less dependent on foreign sources of energy and we want to protect our environment.

And finally, solar and wind technologies. We're also going to talk about that. NREL is doing a lot of important work on solar and wind technology. The vision for solar is, one day, each home becomes a little power unit unto itself, that photovoltaic processes will enable you to become a little power generator, and that if you generate more power than you use, you can feed it back into the grid.

I was, yesterday, in Michigan, and went to United Solar, and they've got some fantastic technologies. Dan was quick to remind me, others have fantastic technologies as well. [*Laughter*] I just hadn't seen them firsthand. But the American people need to know, with additional research dollars, which we're proposing to Congress, we're close to some important breakthroughs—to be able to use this technology to help folks power their homes by the Sun.

And finally, wind. We don't have a lot of turbines in Washington, but there's a lot of wind there, I can assure you of that. [*Laughter*] But there are parts of the country where there are turbines. They say to me that there's about 6 percent of the country that's perfectly suited for wind energy, and that if the technology is developed further, that it's possible we could generate up to 20 percent of our electricity needs through wind and turbine.

What I'm talking about is a comprehensive strategy. In other words, we're not relying upon one aspect of renewable energy to help this country become less dependent; we're talking about a variety of fronts. And we're willing to work with both the public sector and private sector to make sure that we achieve breakthroughs. And I'm fired up about it and so should the American people be. I mean, we're close to changing the way we live in an incredibly positive way. And therefore, I want to thank the folks at NREL for being a part of this exciting movement. It's got to be pretty interesting to be one of these guys working on how to make switch grass go to fuel. I mean, it's got to make you feel good about your work, because you're doing the country a great service.

And so with that in mind, I've asked Dan Arvizu to join us. He's the director of the NREL. That means he's—that means you're the boss? [*Laughter*]

***Dan Arvizu.*** Only part of the time.

***The President.*** Only part of the time.

***Mr. Arvizu.*** Until I get home. [*Laughter*]

***The President.*** Why don't you tell the folks—that's a smart man. [*Laughter*] Why don't you tell the folks what you do here so people can understand.

[*At this point, Mr. Arvizu, director, National Renewable Energy Laboratory, made brief remarks.*]

***The President.*** I think what he's saying is, one of these days, we're going to take wood chips—[*laughter*]—put them through the factory, and it's going to be fuel you can put in your car. Is that right?

***Mr. Arvizu.*** That's absolutely true. [*Laughter*]

***The President.*** Stuff that would normally—[*applause*]. That's the difference between a Ph.D. and the C student. [*Laughter*]

***Mr. Arvizu.*** I didn't want to say that.

***The President.*** Yes, right. [*Laughter*] Anyway, keep going. [*Laughter*]

***Mr. Arvizu.*** One of the other areas that we're tremendously excited by is photovoltaics. You mentioned the photovoltaics.

***The President.*** Explain what photovoltaics are. I threw it out there as kind of, you know, showing off, but tell people what it means.

***Mr. Arvizu.*** Photovoltaics is actually the direct conversion of sunlight to electricity through a semiconductor material, and it's essentially what we use in computers for chips that power those things. And to a large degree, it's a technology that's been around a long time, but it has become much closer to commercialization. Now, in high-value markets it is commercial today.

[*Mr. Arvizu continued his remarks.*]

***The President.*** See, what's changed is, the global supply for fossil fuels is outstripping the—the global demand is outstripping the global supply. And so you're seeing a price of the feedstock of normal energy going up, and technology driving the price of alternatives down. And that's why this is a really interesting moment that we're going to see. It's changed a lot of thinking. The price of natural gas and the price of crude oil has absolutely made these competitive alternative sources of energy real. And the question is, do we have the technological breakthroughs to make it such that it can get to your gas tanks?

[*Mr. Arvizu made further remarks.*]

***The President.*** Thank you, sir. Larry Burns, why don't you explain to folks what you do for a living.

***Lawrence D. Burns.*** Well, I'm responsible for research and development and strategic planning for General Motors. And I've been doing that, working for General Motors, for 37 years, actually.

***The President.*** Thirty-seven years?

***Mr. Burns.*** Yes. I started out in kindergarten.

***The President.*** Yes, I was going to say. [*Laughter*] You're obviously not in politics because your hair is not gray. [*Laughter*]

You know, it's interesting, I bet you people don't know this—a lot of people don't know—there are 4.5 million automobiles on the road today that can either burn gasoline or ethanol—called flex-fuel vehicles. Isn't that interesting? And people don't know that. In other words, the technology is available.

Pick it up from there. I'm trying to give you—[*laughter*].

[*Mr. Burns, vice president of research and development and strategic planning, General Motors, made brief remarks.*]

***The President.*** Tell people what a flex-fuel vehicle is. What is it? Tell them what it is.

***Mr. Burns.*** What it is, it's a vehicle that can burn both gasoline and E–85 ethanol. As you explained, it's 85 percent ethanol and 15 percent gasoline. So any mixture between gasoline and E–85, the vehicle can burn. And in fact, E–85 burns cleaner and yields higher horsepower than gasoline. It's renewable, and it can be homegrown. So we think it's an ideal fuel.

***The President.*** Does it cost much——

***Mr. Burns.*** Well, from a cost standpoint——

***The President.*** ——to make the engine——

***Mr. Burns.*** No, no, actually not. It's a pretty straightforward thing for us to do. The fuel injectors in your engine have to be changed, but this is one of the reasons we can do it in high volume and give our customers the choice for——

***The President.*** In other words, this isn't something that's going to be real expensive

to the consumer, if somebody wants a flex-fuel vehicle?

***Mr. Burns.*** No, not in terms of the vehicle.

[*Mr. Burns continued his remarks.*]

***The President.*** Yes, just one quick point—sorry to interrupt. But people are sitting there saying, "Well, okay, maybe you've manufactured the fuel from different sources, but do you have the automobiles to use it?" And the point is, the technology is already advanced. I mean, they're out there, people on the road using it. So the question is, now, can we get the fuel manufactured close to where people are driving flex-fuel vehicles, or vice versa, so that we can get this technology expanded throughout the country? Go ahead.

[*Mr. Burns made further remarks.*]

***The President.*** That's great. We're spending $1.2 billion over a 5-year period on—or 10-year period for hydrogen research. I would warn folks that I think the hybrid battery and the ethanol technologies will precede hydrogen. Hydrogen is a longer-term opportunity. It's going to take awhile for hydrogen automobiles to develop, plus the infrastructure necessary to make sure people can actually have convenience when it comes to filling up your car with hydrogen. But nevertheless, I'm pleased to hear that GM is like—joining the Federal Government on the leading edge of technological change.

***Mr. Burns.*** The important part about that battery, too, is it's a stepping stone to the fuel-cell vehicle. We'll imagine our fuel-cell vehicles will have some form of storing energy, because as your car slows down, you want to capture that energy and store it. So it's not like we're making one investment here that doesn't help another one. They all come together—the ethanol, the batteries, and the fuel cells are really one in the same roadmap to get to the future that offers a lot of alternatives for our Nation.

***The President.*** Great. Thanks for joining us.

***Mr. Burns.*** Thank you.

***The President.*** Patty Stulp.

***Patty Stulp.*** Hi. Good morning, Mr. President.

***The President.*** You've got an interesting business.

***Ms. Stulp.*** I do, thank you. I blend ethanol for gasoline refiner.

***The President.*** You blend ethanol for a gasoline refinery.

***Ms. Stulp.*** Would you like me to tell you about it?

***The President.*** I wish you would. [*Laughter*] Please don't ask me to tell you about it. [*Laughter*]

***Ms. Stulp.*** I've been involved in the ethanol industry for over 20 years. I grew up on a farm in Yuma County. I need to point out that Yuma County is the number one corn-producing county in the Nation most years. I'm a fourth generation——

***The President.*** Number one corn-producing county in the country.

***Ms. Stulp.*** It's in Colorado.

***The President.*** Really?

***Ms. Stulp.*** We grow a lot of corn, about——

***The President.*** That's not what they told me in Iowa, but that's all right. [*Laughter*] I believe you.

[*Ms. Stulp, president, Ethanol Management Co., made brief remarks.*]

***The President.*** Well said. Our economy—a strong economy is one that needs a good farm economy. And the more markets there are for our farmers, the stronger the economy is going to be. And ethanol is just another market.

***Ms. Stulp.*** Mr. President, we really appreciate your support of this program.

***The President.*** Well, listen, it makes sense. Anybody who doesn't support it doesn't quite understand the problems we face. But thanks. Good job. You're a pioneer yourself.

***Ms. Stulp.*** Thank you.

***The President.*** Colorado is famous for pioneers. [*Laughter*] Bill Frey, straight out of Delaware, is that right?

***Bill Frey.*** Straight out of Delaware, yes.

***The President.*** Welcome.

***Mr. Frey.*** Thank you.

***The President.*** Tell people what you do.

[*Mr. Frey, global business director, DuPont Biobased Materials, made brief remarks.*]

***The President.*** Are you dedicating a lot of dollars to research and development? I know you are in general, but how about to alternative sources of energy?

***Mr. Frey.*** Absolutely. Absolutely. And we're doing it in two regards—most of the discussion so far has been around the issue of fuels as an output. We do a lot of work in terms of using cellulose-based or using corn-based raw materials to make materials as well.

[*Mr. Frey continued his remarks.*]

***The President.*** Good. Let's see what I can ask you here. [*Laughter*] What is your relationship—what is the nature of the relationship with NREL? When you say you work with NREL, tell people how the private sector and Government entities interface.

***Mr. Frey.*** So everyone—people have mentioned bio-refinery—I think probably everyone so far has mentioned bio-refinery—and we're working very closely with NREL—NREL, of course, has had a number of years of being in the space looking at renewable energy, doing a lot of the foundation work that allows us to now look at how we're going to commercialize cellulosics. So we're doing a lot of work in the area of bio-refinery with NREL, looking at how we can take a process which, today, has challenges associated with the economics of doing it, so it's an issue of economic. It's not a technology issue; the technology works. It's the economics of that technology. So we're spending a lot of time on trying to solve those problems.

***The President.*** Do you have people here from your company coming——

***Mr. Frey.*** Actually, there are people meeting today offsite, because of this particular event. [*Laughter*]

***The President.*** I said I was a pain. Look, I said it up front. [*Laughter*]

[*Mr. Frey made further remarks.*]

***The President.*** Part of it's the process of converting the switch grass to fuel, and part of it's to make sure the manufacturing process yields a cost-effective product. And that's a lot of what you're discussing, which is important.

***Mr. Frey.*** And it's important, I think, also, for a lot of the constituents to know that there isn't an either/or situation as it relates to the type of work that we're doing with cellulose. There's some confusion at times, as to is cellulosic going to take the place of corn-based ethanol, and of course, it's not going to at all.

***The President.*** The answer is, no. We have plenty of demand. I mean, there's going to be a lot of cars. We've only got 4.5 million cars—what are there, 220 million cars in America? And by the way, just to make sure everybody's expectations are set, our fleet is not going to change overnight. It takes awhile. When you get new technologies available for people to buy—hybrid vehicles or flex-fuel vehicles—it takes awhile to change a 220-million car fleet to a modern fleet.

And so what we're talking about is an evolution, so people don't have the expectations that overnight, there's going to be millions of people driving hybrid vehicles or—we want them to be. It's just going to—from a practical perspective, it takes awhile. Thanks.

[*Mr. Frey made further remarks.*]

***The President.*** I think the Nation—part of this deal today is to help develop national will. Most Americans understand the problems. And so good, thanks for joining. You did a fine job. Tell them back—hello there in Delaware.

***Mr. Frey.*** All right. I'm sure they're watching so——

***The President.*** They're watching. Well, give them a wave.

***Mr. Frey.*** Okay. [*Laughter*]

***The President.*** Lori Vaclavik.

***Lori Vaclavik.*** Vaclavik.

***The President.*** Vaclavik. It's a very—you're an interesting addition to the panel. Besides being a fine person, tell people what you do. I think people will find this interesting.

[*Ms. Vaclavik, executive director, Habitat for Humanity of Metro Denver, made brief remarks.*]

***The President.*** Great, thanks—well-spoken. If anybody in the Denver area wants to contribute to help somebody's life be better life, join Habitat for Humanity. I mean, it's—if you want to—the truth of the matter is, I was just thinking about—we're talking

about power and power sources and everything; the true power of the country is the hearts and souls of citizens who volunteer to help change people's lives. So, thanks. Beautiful statement—using some technology to help somebody. But you're right; the great source of inspiration is the fact that we got a new homeowner. Yes, that's neat.

Welcome. Dale, step forth. [*Laughter*]

***Dale Gardner.*** I'm here, sir.

***The President.*** Good. Reporting for duty. Are you gainfully employed?

***Mr. Gardner.*** I am. [*Laughter*] As long as you're kind to my boss, Mr. President. [*Laughter*]

***The President.*** As long as Congress quits earmarking, anyway.

***Mr. Gardner.*** Well, we could talk about that too. [*Laughter*] I am here at NREL, but I directly support the hydrogen program back at the Department of Energy.

***The President.*** Great.

[*Mr. Gardner, associate lab director for systems integration, National Renewable Energy Laboratory, made brief remarks.*]

***The President.*** So, like if you got a 2-year-old child, when the person gets to be 12, maybe thinking about driving a car, all of a sudden, the technology becomes more real—pretty close. For a guy 59, 10 years is a lot. [*Laughter*] If you're 2, it's not all that much. [*Laughter*] It's conceivable that a 2-year-old today could be taking a driver's test in a hydrogen-powered automobile.

Keep going.

***Mr. Gardner.*** So here's what we're doing. The major technological challenges—I can boil them up into three areas. There are many, but here is a good way to think about it. The first is production of hydrogen. Hydrogen, even though it's the most common element in the universe, here on Earth, it's not found freely. It's bound up into these larger molecules and, therefore, it takes us energy and dollars to break it free. So that's the main thing.

***The President.*** One reason why we need to expand nuclear power is to be able to help manufacture ample quantities of hydrogen to help change the way we live.

***Mr. Gardner.*** That's exactly right. We can take that electricity from a nuclear powerplant, electrolyze water, which just means break the hydrogen free from the oxygen, and then have it for a fuel source. So production is one of our big goals. And the goal there, of course, is to make the cost of the hydrogen competitive with gasoline today; otherwise, you and I won't want to buy it at the filling station.

***The President.*** Correct.

***Mr. Gardner.*** The second area is storage. This is really an interesting one. Because hydrogen is the simplest element, it has the complexity that affects us in terms of using hydrogen in vehicles. We have to go put hydrogen in a tank, just as we do gasoline. Well, because it's so light and its density is so low, it's really hard to pack enough of it into a tank that's not the size of your whole trunk, such that we can get 300 miles down the road. And for Larry to sell a car to one of us, we want to go at least 300 miles more, especially when you're driving in Texas—a long way between filling stations. [*Laughter*]

***The President.*** Yes. And we want more than one seat in the automobile. [*Laughter*]

[*Mr. Gardner made further remarks.*]

***The President.*** So you've been looking at this for 3 years. Is this like science fiction, or are we talking about something that you think will come to fruition?

***Mr. Gardner.*** This is going to happen.

***The President.*** Pretty exciting, isn't it?

***Mr. Gardner.*** It's going to be out in the middle of the century. It's not going to be something that's going to happen in the next 15 or 20 years, but it's going to be the way our kids and our grandkids view the energy structure of our country. It's very exciting work.

***The President.*** In 1981, I don't think anybody ever thought there would be such a thing as e-mail. Matter of fact, we were still writing letters longhand, if I recall. Typewriters were kind of the—now it's computer. It's amazing what research and development can do to the way we live; pay phones to cell phones in 20 years. I think what we're hearing is change of lifestyle in incredibly important ways in the research that's taking place.

You can't have—we live in an instant gratification world, so we got to be wise about

how we make investments. Part of the strategy is intermediate term, part of the strategy is long term. And thanks for explaining an important long-term strategy. You did a fine job, kind of boiled it down, simplified it—point one, two, three. [*Laughter*]

***Mr. Gardner.*** I heard what you said today on——

***The President.*** That's good, yes. Thank you for joining us. Thanks for your work on that.

Finally, Pat Vincent, the president and CEO of——

***Patricia K. Vincent.*** Public Service Company of Colorado.

***The President.*** Great. Thanks for joining us.

***Ms. Vincent.*** Thank you.

***The President.*** You have a vested interest in all this.

[*Ms. Vincent, president and chief executive officer, Public Service Co. of Colorado, made brief remarks.*]

***The President.*** First let me—before you—what is the main source of your power today?

***Ms. Vincent.*** It's a mix between coal and natural gas.

***The President.*** Coal—right, right—50-50?

***Ms. Vincent.*** We have some nuclear in Minnesota, depends on the State. Here in Colorado, it's predominantly natural gas.

***The President.*** And what States do you cover?

***Ms. Vincent.*** We cover 10 States. We cover the panhandle of Texas.

***The President.*** Do you?

***Ms. Vincent.*** We do. Oklahoma——

***The President.*** People paying their bills down there? [*Laughter*]

***Ms. Vincent.*** They are—they are.

***The President.*** That's good. A fine part of the country, I want to you know. Well, you don't need to name them all, a 10-State area.

***Ms. Vincent.*** Yes, 10 States.

***The President.*** And you're based where?

***Ms. Vincent.*** I'm based here in Denver, and this is our largest utility company here—is in Colorado. And we have a wind source program that's been around since 1998.

[*Ms. Vincent continued her remarks.*]

***The President.*** So like when you analyze the wind turbine technology, is it advancing rapidly? Is there more advances being made—or am I getting you out of your lane here?

***Ms. Vincent.*** No, it's advancing rapidly. And what we're finding is like Dan talked about, the demand for solar—is that the demand for the turbines is starting to outstrip the supply. And a lot of it's going overseas. The production tax credit really helps us here because it kind of goes in boom and bust cycles, so that has really helped us levelize the demand and make them commercially feasible. And people like GE are making big strides in wind technology.

***The President.*** Good.

***Ms. Vincent.*** Second programs we have are with NREL, and we have two. And the first one is a wind to hydrogen program. And I don't know about your experience with wind, but it does blow intermittently here in Colorado and——

***The President.*** It does in Washington too. [*Laughter*]

***Ms. Vincent.*** I wasn't sure if it was all the time or just intermittently.

***The President.*** Lately, all the time. [*Laughter*]

[*Ms. Vincent made further remarks.*]

***The President.*** By the way, this may interest you if you are—these people manufacturing photovoltaic products can't make enough. I mean, the demand for these things is huge. And there's just not enough capacity. The plant we were at yesterday is going to double in size. They're making neat roofing materials, by the way. I'm not their marketing guy—[*laughter*]—just happens to be on my mind. What's interesting about the discussion is the utility industry needs alternative sources of energy in order for them to be able to do their job. I think that's what you're saying.

***Ms. Vincent.*** Yes, and it's good for our customers. It's good for the communities; it's good for us——

***The President.*** Absolutely.

***Ms. Vincent.*** ——our shareholders.

***The President.*** It's good for your customers; it's good for you.

***Ms. Vincent.*** Yes.

***The President.*** And I know you feel that way. Managing peak electricity loads with alternative sources of energy makes a lot of sense.

***Ms. Vincent.*** Yes, it does.

***The President.*** Good. You did a fine job.

***Ms. Vincent.*** Thank you.

***The President.*** So that's why we're here, to talk about a variety of options to achieve a great national goal. And there's no doubt in my mind we're going to achieve it. And it's exciting. It's exciting times to be involved with all aspects of this strategy. And you heard some of our fellow citizens describe to you what they're doing to be a part of this giant effort to change the way we live, so that future generations of Americans will look back at this period and say, "Thank goodness there was yet another generation of pioneers and entrepreneurs willing to think differently on behalf of the country."

Thanks for coming. God bless. Good job.

NOTE: The President spoke at 9:19 a.m. at the National Renewable Energy Laboratory. In his remarks, he referred to Mayor Charles J. Baroch of Golden, CO; Colorado State Senator Andy McElhany; and Joe Stengel, minority leader, Colorado State House of Representatives. The Office of the Press Secretary also released a Spanish language transcript of these remarks.

## Interview With Reporters Aboard Air Force One

*February 21, 2006*

***The President.*** Thank you all for coming. A couple of points I want to make to you. First, I'm excited about the energy initiative. American people are beginning to see that we've made good progress on research and development. We've got more to do. We're close to some breakthroughs that will achieve an economic and national security objective.

And I've enjoyed traveling around and talking to these scientists and engineers that are really excited about how close we are to some technological breakthroughs. Today, talking to the two scientists involved with the cellulosic ethanol projects was exciting. These guys are pretty fired up about it all, and they realize we've got a chance to change our driving habits.

I do want to talk about this port issue. A foreign company manages some of our ports. They've entered into a transaction with another foreign company to manage our ports. This is a process that has been extensively reviewed, particularly from the point of view as to whether or not I can say to the American people, "This project will not jeopardize our security." It's been looked at by those who have been charged with the security of our country. And I believe the deal should go forward. This company operates all around the world. I have the list somewhere. We can get you the list. They're in Germany and elsewhere—Australia.

They—in working with our folks, they've agreed to make sure that their coordination with our security folks is good and solid. I really don't understand why it's okay for a British company to operate our ports but not a company from the Middle East, when our experts are convinced that port security is not an issue; that having worked with this company, they're convinced that these—they'll work with those who are in charge of the U.S. Government's responsibility for securing the ports—they'll work hand in glove. I want to remind people that when we first put out the Container Security Initiative, the CSI, which was a new way to secure our ports, UAE was one of the first countries to sign up.

In other words, we're receiving goods from ports out of the UAE as well as where this company operates. And so I, after careful review of our Government, I believe the Government ought to go forward. And I want those who are questioning it to step up and explain why all of a sudden a Middle Eastern company is held to a different standard than a Great—British company. I'm trying to conduct foreign policy now by saying to people of the world, "We'll treat you fairly." And after careful scrutiny, we believe this deal is a legitimate deal that will not jeopardize the security of the country and, at the same time, send that signal that we're willing to treat people fairly.

Thirdly, I'm looking forward to my speech tomorrow about my trip to India and Pakistan. It's going to be an important trip, one